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Modeling of contextual effect
based on spectral peak interaction

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Abstract:

This paper presents a model of a lower level contextual effect that can cope with co-articulation problems, especially vowel neutralization. The model is constructed to overshoot spectral peak trajectories based on spectral peak interaction, assuming that the lower level contextual effect is represented as the sum of the interaction function between each spectral peak pair. The interaction function is determined experimentally in order to reduce the distance between a real spectral peak and its target which is a spectral peak mean computed for vowels uttered in isolation. The interaction function thus determined suggests that spectral peak interaction plays some important roles in the contextual effect and recovers phoneme characteristics from neutralization. Applying the determined interaction function to real speech data to cope with vowel neutralization, spectral peak trajectory overshoot, spectral peaks at the vowel center approach their own targets, and the distance between each vowel category pair increases.

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NOTE : This work has been presented in the 117th meeting of the Acoustical Society of America on May 22-26, 1989 and this paper has been handed attendance of the meeting by the meeting paper-copying service.